Claims

1. A radial piston hydraulic motor which includes a box frame (10) with a cam ring (11) connected thereto and pistons ($13a_1$, $13a_2$...) in a piston frame (12) and press rollers ($14a_1$, $14a_2$...) in the pistons, which press rollers can be pressed by means of the pressure of a hydraulic fluid, such as hydraulic oil, against an inner surface (11') of the cam ring (11), and that the piston frame (12) is connected to a central shaft (17), and that there is a distributor valve (18) that includes bores (23) through which hydraulic oil can be passed into and out of connection with the pistons ($13a_1$, $13a_2$...), the device arrangement including a working pressure inlet passage (B) for the hydraulic fluid and a return passage (A) for the hydraulic fluid which is not under working pressure, **characterized** in that the radial piston hydraulic motor (100) includes a free rotation valve (50) which is built inside it and includes a spindle (19) which is disposed in a spindle cavity (20) and which is movable in the spindle cavity (20) such that, in a free rotation situation, shoulders of the spindle (19) block the working pressure inlet and outlet passages (A, B), so that, in a free rotation situation, springs (U_1, U_2...) press the pistons ($13a_1$, $13a_2$...) and the press rollers ($14a_1$, $14a_2$...) associated therewith to a bottom position and out of contact with the cam ring (11).

2. A radial piston hydraulic motor as claimed in the preceding claim, **characterized** in that the spindle (19) includes a spring (21) at an end thereof, so that when an end of the spindle (19) is not acted upon by means of a control pressure through a passage (C), the spring (21) keeps the spindle (19) in one of its extreme positions.

3. A radial piston hydraulic motor as claimed in any one of the preceding claims, **characterized** in that the spindle (19) includes shoulders (t_1, t_2, t_3, t_4) the diameter of which is larger than that of spindle portions (p_1, p_2, p_3, p_4) between them, and in that there is a spring (21) that is placed around a spindle portion (p_4) between the end of the spindle cavity (20) and a shoulder (t_4) of the spindle (19), so that the

control pressure passed to the passage (C) of the spindle (19) presses the spindle (19) against the spring force of the spring (21).

4. A radial piston hydraulic motor as claimed in any one of the preceding claims, **characterized** in that in the device design in a free rotation situation the device arrangement includes a spindle (19) whose shoulders (t_2 and t_3) prevent flow communication between the pressure line (B) and the return line (A), so that, in the device arrangement, the passages (23) of the distributor valve (18) communicate with one another through the spindle cavity (20) at the area between the shoulders (t_2 and t_3), so that the springs (U_1, U_2...) hold the pistons ($13a_1$, $13a_2$...) and the press wheels ($14a_1$, $14a_2$...) associated therewith out of contact with the cam ring (11) and the box (10) of the radial piston hydraulic motor (100) can be rotated freely, and that, in a free rotation situation, the passages (23) of the distributor valve (18) communicate with one another through the spindle cavity (20) at the area between the shoulders (t_2 and t_3), the hydraulic fluid can flow into a box (K) from below the pistons while assisted by the springs through passages (D, E, F, G), a space (H) and a passage (J), so that the press rollers ($14a_1$, $14a_2$...) of the pistons are separated from the cam ring (11) and the motor can be rotated freely.

5. A radial piston hydraulic motor as claimed in the preceding claim, **characterized** in that from a line (E) there is a passage (F and G) which communicates with the space (H) at the end of the spindle cavity (20) and further through a passage (J) with the interior space (K) of the box (10).

6. A radial piston hydraulic motor as claimed in claim 1, **characterized** in that in a normal drive state the pressure line (B) communicates with a passage (D) at the area between shoulders (t_1 and t_2) of the spindle (19) and further with pistons ($13a_1$, $13a_2$...) further through the distributor valve (18) and its passages (23), and that other pistons ($13a_1$, $13a_2$...) communicate further with a passage (E) through

the passages (23) of the distributor valve (18) and further with the return line (A) at the area between shoulders (t_2 and t_3) of the spindle (19).

7. A radial piston hydraulic motor as claimed in any one of the preceding claims, **characterized** in that the radial piston hydraulic motor (100) includes a rotatable box frame (10) and that the piston frame (12) is non-revolving and placed on a non-revolving central shaft (17), and that there is a distributor valve (18) that is connected to the rotated box frame (10) and rotates with it, and that the spindle (19) is placed in the spindle cavity (20) of the central shaft (17).

8. A method in the control of a radial piston hydraulic motor (100), which radial piston hydraulic motor (100) includes a box frame (10) with a cam ring (11) connected thereto, and that there is a piston frame (12) and pistons ($13a_1$, $13a_2$...) moving radially in it and the pistons have press rollers ($14a_1$, $14a_2$...), which can be pressed by means of the pressure of a hydraulic fluid, such as hydraulic oil, against an inner surface (11') of the cam ring (11), and that the piston frame is connected to a central shaft (17), and that there is a distributor valve (18) that includes bores (23) through which the hydraulic fluid, such as hydraulic oil, can be passed into and out of connection with the pistons ($13a_1$, $13a_2$...), the device arrangement including a working pressure inlet passage (B) for the hydraulic fluid and a return passage (A) for the hydraulic fluid which is not under working pressure, **characterized** in that a free rotation valve (50) built inside the radial piston hydraulic motor (100) is used in the method, which free rotation valve includes a spindle (19) which is moved in a spindle cavity (20), and that in the method, in a free rotation situation, shoulders (t_1 and t_2) of the spindle (19) block the working pressure inlet and outlet passages (A and B), so that, in a free rotation situation, the pistons ($13a_1$, $13a_2$...) and the press rollers ($14a_1$, $14a_2$...) associated therewith are pressed by means of springs (U_1, U_2...) to a bottom position and out of contact with the cam ring (11), so that the radial piston hydraulic motor (100) can be rotated freely.

9. A method as claimed in the preceding claim, **characterized** in that in the method in a free rotation situation the passages of the distributor valve (18) leading to the pistons ($13a_1$, $13a_2$...) which are in the working phase and the passages of the distributor valve (18) leading from the pistons ($13a_1$, $13a_2$...) which are in the return phase are connected in series, and that in a free rotation situation said system of passages connected in series is additionally connected to an interior space (K) of the box frame (10).

10. A method as claimed in claim 8 or 9, **characterized** in that, in the method, control takes place by moving the spindle (19) in the spindle cavity (20) of the central shaft (17).